NATIONAL RADIO ASTRONOMY OBSERVATORY

520 EDGEMONT ROAD CHARLOTTESVILLE, VA 22903-2475

TELEPHONE 434-296-0211 FAX 434-296-0278

03 January 2011

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Promoting Expanded Opportunities for Radio	)	ET Docket No. 10-236
Experimentation and Market Trials under Part	)	
5 of the Commission's Rules and Streamlining	)	
Other Related Rules	)	
	)	
2006 Biennial Review of Telecommunications	)	ET Docket No. 06-105
Regulations – Part 2 Administered by the	)	
Office Of Engineering and Technology (OET)	)	

Comments of the
National Radio Astronomy Observatory
Charlottesville, VA 22903

1. The National Radio Astronomy Observatory ("NRAO" or "the Observatory") is pleased to provide comments responding to the Commission's Notice of Proposed Rulemaking, FCC 10-197 ("the NPRM"), proposing establishment of a new class of research experimental radio licenses and creation of so-called geographic innovation zones.

2. NRAO (http://www.nrao.edu), operated by Associated Universities, Inc., (http://www.aui.edu) under a cooperative agreement with the National Science Foundation, is the largest observatory dedicated to radio astronomy and one of the largest observatories of any kind in the world. NRAO operates one dozen radio astronomy stations in rural and remote regions of the United States (see Annex 1) that might be located in or near candidate innovation zones. NRAO stations operate in exclusive passive service spectrum bands protected by US246[1] and in other bands under other protections, whose application in innovation zones is questioned by the Commission at ¶42 of the NPRM.

3. At ¶42 of the NPRM, the Commission asks what are the criteria that should be used "to identify areas that are sufficiently isolated or protected to serve as innovation

[1] Subject to US74

zones." NRAO, like other observatories, has gone to great lengths and expense to establish stations in remote areas so that they may take full advantage of access to the spectrum. This includes restricted spectrum that is reserved for passive service use under US246 but subject to US74 regarding spurious emissions; shared spectrum that is subject to other footnote protections, especially US342 but also US117, 203, 211, 277, 353 and 385; and other radio spectrum where observations are conducted on a non-interference, non-protection basis. The isolation of these remote stations is of fundamental importance to radio astronomy operations and the relative freedom of such remote areas from RF radiation is not necessarily a sign of disuse of the spectrum.

4. The Observatory requests that the Commission take into account the proximity of radio astronomy stations and prospective innovation zones and does not establish zones whose operations could impact radio astronomy operations in any portion of the spectrum, as judged by established protection criteria for the radio astronomy service such as ITU-R Recommendation RA. 769.

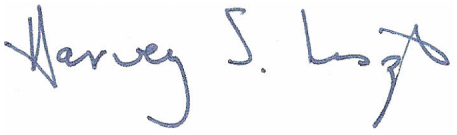
5. Also at ¶42 of the NPRM the Commission proposes to " … broadly permit experiments on any frequency that is not specifically listed in Section 15.205(a) of our rules, except that experiments could use frequencies above 38.6 GHz so long as they are not listed in footnote US246 of the Table of Frequency Allocations. *We recognize that in geographically remote areas it may not be necessary to impose limitations on the use of the restricted frequency bands. We seek comment on when and how we should impose restrictions on individual licenses and/or in particular innovation zones that are located in remote areas.*" [italics added]

6. NRAO requests that restrictions against transmitting in exclusive passive service bands not be made contingent upon geographic isolation or subject to any exceptions beyond those in the existing rules, whether for experimental radio licenses or otherwise. Exclusive passive service bands are shared among passive services, they are used in global experiments, including those conducted by the US, and there is a global expectation that they will be preserved for passive use.

7. Consistent with the remarks at ¶4 here, NRAO requests that protections for radio astronomy observations in shared bands not be made subject to new exceptions for experimental radio licenses.

Respectfully submitted,

National Radio Astronomy Observatory
By:



Harvey S. Liszt
Scientist and Spectrum Manager

Direct correspondence to:
Dr. Harvey S. Liszt (hliszt@nrao.edu)
Spectrum Manager
National Radio Astronomy Observatory
520 Edgemont Road
Charlottesville, VA 22903-2475

Annex 1.

NRAO Instruments

NRAO Telescope	West Longitude	North Latitude	Height
Robert C. Byrd Green Bank Telescope (GBT)	79° 50' 24"	38° 25' 59"	825 m
Expanded Very Large Array (eVLA)	107° 37' 04"	34° 04' 44"	2126m
Very Long Baseline Array (VLBA):			
Brewster, WA	119°40' 55"	48° 07' 53"	255 m
Fort Davis, TX	103° 56' 39"	30° 38' 06"	1615m
Hancock, NH	71° 59' 12"	42° 56' 01"	309 m
Kitt Peak, AZ	111° 36' 42"	31° 57' 22"	1916m
Los Alamos, NM	106° 14' 42"	35° 46' 30"	1967m
Mauna Kea, HI	155° 27' 29"	19° 48'16"	3720m
North Liberty, IA	91° 34' 26"	41° 46' 17"	241 m
Owens Valley, CA	118° 16' 34"	37° 13' 54"	1207m
Pie Town, NM	108° 07' 07"	34° 18' 04"	2371m
St. Croix, VI	64° 35' 03"	17°45’31"	16m